

CLAIMS

1. A method for control of the operation of a nitrogen oxides trap (18) for an internal combustion engine running on lean mixture, wherein purging of the said nitrogen oxides trap is commanded periodically, characterized in that a first oxygen sensor (21) is disposed in the exhaust pipe downstream from the nitrogen oxides trap (18), and the evolution of a meaningful signal representative of the signal (3, 4) delivered by this sensor is observed, a substantial increase (34, 44) of this meaningful signal from a first plateau (32, 42) of substantially constant level, reached following a variation (31, 41) subsequent to a changeover of the engine from running on lean mixture to running on rich mixture, being used as the indicator to command the end of purging.

2. A method according to claim 1, characterized in that there is additionally used a second oxygen sensor (22) disposed upstream from the nitrogen oxides trap (18), in order to deliver a reference signal (5), relative to which the evolution of the signal delivered by the first sensor is compared in order to deliver the said meaningful signal.

3. A method according to claim 1 or 2, characterized in that the increase of the meaningful signal is detected by applying filtering of the first derivative (7) of the meaningful signal and by comparing the filtered first derivative with a predetermined threshold.

4. A method according to claim 1 or 2, characterized in that the increase of the meaningful signal is detected by applying filtering of the second derivative (8) of the meaningful signal and observing the passage of the filtered second derivative through zero in decreasing threshold.

5. A method according to claim 1 or 2, characterized in that the increase of the meaningful signal is detected by taking the difference between the instantaneous value of the meaningful signal and a sliding mean of the said signal, and by comparing this difference with a threshold.

6. A method according to claim 1 or 2, characterized in that the increase of the meaningful signal, for a lambda sensor, is detected by comparing the voltage value delivered by the sensor with a predetermined threshold.

7. A method according to claim 1, characterized in that the oxygen sensor or sensors (21, 22) is or are chosen from among the sensors of the following type: sensor of lambda type, proportional oxygen sensor, nitrogen oxides detector, in which the oxygen-concentration measuring function is used.

8. A method according to claim 7 in combination with claim 2, characterized in that the two sensors (21, 22) are of different types.

9. A device for control of the operation of a nitrogen oxides trap (18) for an internal combustion engine running on lean mixture, for use of the method according to one of claims 1 to 7, the engine being equipped with an exhaust line (16) containing a nitrogen oxides trap (18), characterized in that it is provided with an oxygen sensor (21) disposed on the exhaust line downstream from the nitrogen oxides trap, and with calculating means (23) for determining a substantial increase of a meaningful signal representative of the signal (3, 4) delivered by the said sensor from a first plateau (32, 42) of substantially constant level, reached following initiation of a purging operation, and using the said increase as indicator to command the end of purging.

10. A device according to claim 9, characterized in that it is provided with a second oxygen sensor (22) disposed upstream from the nitrogen oxides trap (18) and connected to the said calculating means (23) in order to deliver a reference signal thereto.